

REMARKS

Reconsideration of the application is requested.

Claims 1-14 remain in the application. Claims 1-14 are subject to examination. Claims 3, 13 and 14 have been amended.

Under the heading "Claim Rejections - 35 USC § 112" on page 2 of the above-identified Office Action, claim 3 has been rejected as being indefinite under 35 U.S.C. § 112, second paragraph.

More specifically, the Examiner states that the recitation of "the channel coder" lacks antecedent basis. Claim 3 has been amended to overcome the antecedent basis problem.

In addition, claims 13 and 14 were amended to overcome a noted informality.

It is accordingly believed that claim 3 meets the requirements of 35 U.S.C. § 112, second paragraph. The above-noted changes to the claims are provided solely for clarification or cosmetic reasons. The changes are neither provided for overcoming the prior art nor do they narrow the

scope of the claim for any reason related to the statutory requirements for a patent.

Under the heading "Claim Rejections - 35 USC § 103" on pages 3 and 4 of the above-identified Office Action, claims 1-2, 6-11, 13 and 14 have been rejected as being obvious over U.S. Patent No. 5,321,721 to Yamaura et al. (hereinafter Yamaura) in view of U.S. Patent No. 5,790,591 to Gold et al. (hereinafter Gold) under 35 U.S.C. § 103.

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and, therefore, the claims have not been amended to overcome the references.

According to claim 1 of the instant application, a message signal is channel coded and subscriber coded in a transmitter. The subscriber code is selected from a plurality of available subscriber codes. A characteristic feature of claim 1 is that the subscriber code is selected such that an overall code has a maximum Hamming distance, with the overall code being formed from the channel code and the selected subscriber code. The Hamming distance is defined as the minimum distance between two random code words.

According to the invention, the subscriber code is no longer selected just from the viewpoint of multiple access, but also from the viewpoint of error protection of the message signal to be transmitted. The conventional separation between channel coding (for the purpose of error protection) and subscriber coding (for the purpose of subscriber separation) is thus removed. Since the subscriber code is selected in such a way that the Hamming distance of the overall code is maximized, the message signal is highly tolerant to errors, which generally occur during transmission. Due to the maximization of the Hamming distance, these errors can be corrected during the decoding process within the receiver.

Yamaura teaches to channel code a message signal within an encoder 102 (see Fig. 14) and afterwards to subscriber code the channel encoded message signal within a spread spectrum modulator 104. For subscriber coding a plurality of subscriber codes can be selected (selection is carried out by switch S5 in Fig. 13). In contrast to claim 1 of the instant application, Yamaura fails to link the channel code and the subscriber code to an overall code that is formed by these two codes. In addition, Yamaura fails to disclose that the Hamming distance of the overall code has to be maximized. It should be emphasized that the inventive teaching is not directed to maximize the Hamming distance of only the

subscriber code, as mentioned under item 4 of the Office action, but to maximize the Hamming distance of the overall code.

Gold deals with the generation of spread spectrum codes (see the Abstract, line 2), which corresponds to the term "subscriber codes" as it is used in claim 1 of the instant application. Gold teaches to employ spread spectrum codes that have a maximum Hamming distance (see column 26, lines 16 to 19). But Gold does not link the spread spectrum code and a channel code to an overall code. Thus, Gold fails to disclose that the Hamming distance of an overall code has to be maximized.

Since the idea to link the channel code and the subscriber code to an overall code and further to maximize the Hamming distance of the overall code is not proposed in Yamaura or Gold nor rendered obvious to a person skilled in the art with the knowledge of Yamaura and Gold, claim 1 of the instant application is respectfully believed to be novel.

An analogous argument relates to claims 9 and 10. More specifically, claims 9 and 10 of the instant application recite that a message signal is channel coded and subscriber coded in a transmitter. The subscriber code is selected from a plurality of available subscriber codes. The subscriber

code is selected such that an overall code has a maximum Hamming distance, with the overall code being formed from the channel code and the selected subscriber code. The same arguments stated above apply equally well to claims 9 and 10 and are therefore not repeated.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1, 9 and 10. Claims 1, 9 and 10 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claim 1 or 10.

Finally, applicants appreciatively acknowledge the Examiner's statement that claims 4, 5 and 12 "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." In light of the above, applicants respectfully believe that rewriting of claims 4, 5 and 12 is unnecessary at this time.

In view of the foregoing, reconsideration and allowance of claims 1-14 are solicited.

Appl. No. 10/047,007  
Amdt. Dated December 15, 2004  
Reply to Office Action of September 16, 2004

If an extension of time is required, petition for extension is herewith made. Any extension fee associated therewith should be charged to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

  
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For Applicants

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